momentum™

HDM150
DMR Mobile Radio

Quick Guide

14222-1155-1000, Nov/11

HARRIS®

DMR
DIGITAL MOBILE RADIO ASSOCIATION

SYMBOLS USED IN THIS GUIDE

The following table lists symbols used in this guide. These symbols do not appear in the radio's display.

SYMBOL	DESCRIPTION
	The **DIGITAL CHANNEL** symbol indicates the particular feature or function is available on digital channels only.
	The **ANALOG CHANNEL** symbol indicates the particular feature or function is available on digital channels only.
	The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure. It may also be used to add tips that can help you make better use of the radio.

If no digital channel or analog channel symbol appears, the function/feature is applies to both analog channels and digital channels.

NOTICE!

For detailed operating information and a list of options and accessories available for the HDM150 mobile radio, refer to *Operator's Manual* publication number 14222-1155-2000. This and other related publications are also available online at www.pspc.harris.com.

Also refer to the *Operator's Manual* for important safety-related information!

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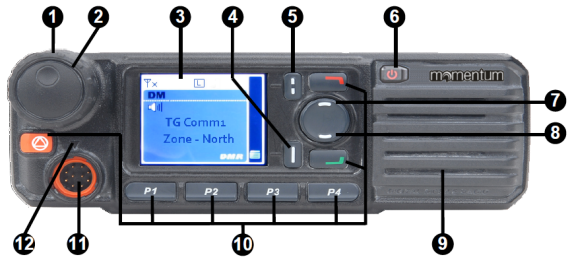
FRONT PANEL

NO.	ITEM NAME	NO.	ITEM NAME
❶	Volume Control/-Channel Selector Knob	❷	LED Indicator
❸	Liquid Crystal Display (LCD)	❹	OK/Menu Key
❺	Back Key	❻	Power On/Off Key
❼	Up Key	❽	Down Key
❾	Speaker (internal)	❿	Programmable Keys P1 – P4, , , and
⓫	Microphone Jack	⓬	Mic Jack Index



PROGRAMMABLE SHORTCUT KEYS

For enhanced convenience, you may request your dealer pre-program keys P1, P2, P3, P4, , , and as shortcuts to certain functions. Refer to the *Operator's Manual* for additional information.

NOTE

Long and short presses of a key can be programmed by your dealer with different functions. A "long press" means to press and hold the key for a longer period (default time = 2 seconds) to activate that function.

The key is programmed as the emergency key by default. It may be reprogrammed by your dealer for a different function.

RADIO STATUS INDICATORS

OPERATIONAL MODE AND STATUS ICONS THE DISPLAY

The radio has two (2) operational mode icons and multiple status icons that appear in its display. These icons are illustrated and described in the following table.

ICON NAME	ICON	DESCRIPTION
Direct Mode	DM	This operational mode icon indicates the radio is operating in direct mode. In this mode, radios communicate with each other directly. This mode is also referred to as “talk around.”
Repeater Mode	RM	This operational mode icon indicates the radio is operating in repeater mode. In this mode, radios communicate with each other via a repeater (i.e., radio base station equipment).
RSSI Icons		This Received-Signal Strength Indication (RSSI) icon indicates no radio signal is being received. RSSI icons appear in the upper left corner of the display.
		More bars after an RSSI icon indicate better signal strength.
Message Icons		New message/unread message.
		InBox is full.
Scan Icons		Scanning.
		Scanning is paused on a non-priority channel.
		Scanning is paused on the priority 1 channel.
		Scanning is paused on the priority 2 channel.

ICON NAME	ICON	DESCRIPTION
Transmit (Tx) Power Level Icons		Selected channel is set for low transmit power.
		Selected channel is set for high transmit power.
Monitor Icon		The monitor feature is active. See page 12 for additional information.
Speaker Icon		The speaker is unmuted.
Emergency Icon		The Emergency mode (other than secret emergency) is active or an emergency message has been received.
Knob Operation Mode Icons		Volume Control/Channel Selector knob is in channel selection mode.
		Volume Control/Channel Selector knob is in volume adjustment mode.
GPS Icons		The GPS feature is active and valid GPS data is being received.
		The GPS feature is active but valid GPS data is not being received.
Scrambler/-Encrypt Icon		The Scrambler/Encrypt feature is enabled/active.
Missed Call Icon		A call has been missed.
DTMF Keypad Icon		Dual-Tone Multi-Frequency (DTMF) keypad entry mode is enabled/on, so numbers can be entered via the keypad on the (optional) palm keypad microphone.
Roam Icon		The radio is roaming.

LED INDICATOR

The radio has a light-emitting diode (LED) type status indicator in the form of a light ring on the Volume Control/-Channel Selector Knob. This indicator can be quickly viewed to determine the basic operational status of the radio. Each status indication is described in the table at the right.

LED INDICATOR		RADIO STATUS
Flashing Green		Powering on
Glowing Red		Transmitting
Glowing Green		Receiving
Flashing Orange Slowly (approximately once every 2 sec.)		Scanning
Flashing Orange Rapidly (approximately twice every 1 sec.)		Emergency
Glowing Orange		After voice communication ends, it is OK to transmit voice audio by pressing the microphone's PTT key and speaking into the microphone.

BASIC OPERATIONS

TURNING THE RADIO ON AND OFF

To turn on the radio, long-press the **Power On/Off** key until the power-up screen displays and the power-up beep sounds. The radio responds by displaying its power-up screen and its LED status indicator flashes green. To turn the radio off, press the **Power On/Off** key.

ADJUSTING THE VOLUME

When the **Volume Control / Channel Selector** knob is in the volume adjustment mode, the icon appears in the display. This is the default operating mode for this knob. During this time, rotate the knob clockwise to increase the volume and rotate it counter-clockwise to decrease the volume.

When the knob is in channel selector mode, the knob will return to the volume adjustment mode after approximately five (5) seconds of no knob activity. See page 7 for channel selector mode information.

SELECTING A ZONE

A zone is a group of programmed radio channels exhibiting similar properties. The radio supports up to sixty-four (64) zones and each zone can have up to sixteen (16) channels. Zones and channels are programmed into the radio by your dealer. Select a zone using either of the following methods:

- Menu Selection Method — From the home screen, press the **Menu** key, select **Zone**, then use the **Up/Down** key to select the desired zone from the menu.
- Programmed Shortcut Keys Method — If programmed by your dealer, quickly switch to a desired zone by pressing the programmed **Zone Up** or **Zone Down** shortcut key.

NOTE

A fixed zone and channel may be automatically selected at radio power-up per radio programming. If not fixed, the selected zone and channel will remain at the next power-up.

SELECTING A CHANNEL

To select a channel within the current zone, press the **Volume Control / Channel Selector** knob to enter the channel selector mode (icon appears in display) and then rotate the knob clockwise or counter-clockwise to select the desired channel. The name of the currently selected channel appears in the display. The knob returns to the volume adjustment mode after approximately five (5) seconds of no knob activity.

The number of the newly selected channel will be announced from the radio's speaker in a synthesized voice if the radio's Channel Notify feature is enabled. If desired, enable or disable this feature from the Channel Notify menu as follows: Menu > Settings > Radio Set > Tone > Channel Notify > Enable or Disable.

SWITCHING THE CHANNEL MODE BETWEEN ANALOG AND DIGITAL

Each channel within a zone can be programmed as either an analog channel or a digital channel. If the currently selected zone includes both analog and digital channels, use the **Volume Control / Channel Selector** knob (in channel selector mode) to quickly switch between analog and digital channels. Select the desired channel by rotating this knob when it is in the channel selector mode.

HOME SCREEN

The home screen is the default operating screen. It indicates the name of the selected zone, the name of the selected channel, and other parameters of the selected channel (via icons) such as if the channel is a repeater vs. a direct mode channel, the current transmit power level, receive signal strength, etc.

To return to the home screen from any menu screen, simply press the **Back** key one or more times. Alternately, if the **Home Screen** shortcut key is programmed, press it to exit the menu screen and immediately return to the home screen. In an editing screen, press the **Home Screen** shortcut key to exit and immediately return to the previously selected menu.

PRIVATE CALLS

A private call is a call initiated by a radio user to another radio user.

Transmitting a Private Call

When transmitting a private call, the icon appears in the display. A private call can be transmitted using a method described in the following subsections.

Whenever transmitting (i.e., **PTT** key), hold the microphone between 1 to 2 inches (2.5 to 5 centimeters) from your month and speak into the microphone at a normal voice level. This will ensure optimal reception at the receiving radio unit(s). Never shout or whisper when transmitting.

Transmitting a Private Call to the Preset Contact

While in the home screen, hold down the microphone's **PTT** key to transmit a private call to the Private Call contact preset for the currently selected channel. Release the **PTT** key to stop transmitting, and listen for a reply. See *Receiving and Responding to a Private Call* on page 9 for additional information.

Each digital channel may be programmed by your radio dealer with a preset contact. The preset contact can be a Private Call contact, a Group Call contact, or an All Call contact.

Transmitting a Private Call via the Contact List or Call Logs

1. While in the home screen, press the **Menu** key.
2. Select Contact > Contact List. Alternately, go to Call Logs and access the Outgoing/Incoming/Missed list.

3. Press the **Up/Down** key to select the Private Call contact desired for calling. In this list, each Private Call contact name is preceded by a icon.
4. Hold down the microphone's **PTT** key to transmit a private call to the selected contact, and speak into the microphone at a normal voice level.
5. Release the **PTT** key to stop transmitting, and listen for a reply. See *Receiving and Responding to a Private Call* for additional information.

Transmitting a Private Call via Manual Input (Requires Optional Keypad Microphone)

1. While in the home screen, press the **Menu** key.
2. Select Contact > Manual Dial.
3. Enter the Private Call number desired for calling via the microphone's keypad.
4. Hold down the microphone's **PTT** key to transmit the private call, and speak into the microphone at a normal voice level.
5. Release the **PTT** key to stop transmitting, and listen for a reply.

NOTE

If the radio is programmed for Private Call Manual Dial and Group Call Manual Dial, switch between these by pressing the # key. The appropriate ID is displayed.

NOTE

If the radio is programmed with the Default Numeric Key Selection enabled, you can enter a Private Call number in the home screen using a keypad microphone, and then hold down the mic's **PTT** key to transmit the Private Call. However, if the DTMF keypad is enabled, the number entered in the home screen is a phone number. You can dial the Private Call number through the Manual Dial menu only.

Receiving and Responding to a Private Call

When a private call is received, the icon appears in the radio's display. To respond to the call, hold down the microphone's **PTT** key within the preset time period, and speak into the microphone at a normal voice level.

If you do not respond to a received private call, the missed call icon appears at the top of the display. In addition, if the radio is programmed with Display Missed Call enabled, the large icon also displays.

GROUP CALLS

A group call is a call initiated by a radio user to a group of radio users.

Transmitting a Group Call

When transmitting a group call, the icon appears in the display. Basic operating procedures for making group call are similar to those previously described for making private calls. A group call can be transmitted using any of these methods:

- To the Preset Contact
- Via the Contact List
- Using Manual Input (Requires Optional Keypad Microphone)

Receiving and Responding to a Group Call

When a group call is received, the icon appears in the radio's display. To respond to the call, hold down the microphone's **PTT** key within the preset time period, and speak into the microphone at a normal voice level.

If you do not respond to a received group call, the missed call icon appears at the top of the display.

ALL CALLS

An all call is a call initiated by a radio user to all radio users on the channel.

Transmitting an All Call

All calls can be transmitted to the preset contact list or to a contact on the Contact list. Methods for transmitting an all call are the similar to those described for *Transmitting a Private Call* on page 8. When transmitting an all call, the icon appears in the display.

NOTE

All calls can only be transmitted if enabled by your dealer via radio programming.

Receiving an All Call

When an all call is received, the icon appears in the display.

NOTE

It is not possible to respond to an all call.

TALK-AROUND (DIRECT MODE)

The talk-around feature provides direct radio-to-radio communications. With talk-around, a radio repeater system is not required for radio communications. This type of operation is sometimes called "direct mode." Talk-around is beneficial when, for example, a radio repeater system malfunction has occurred, or when the radio is out-of-range of a radio repeater system, but other radios are nearby that can communicate on the same programmed radio channels.

To toggle radio operation between normal communications mode (repeater mode) and talk-around, simple press the pre-configured **Talk-Around** shortcut key. When in talk-around/direct mode, the **DM** icon appears near the upper left corner of the display. When in repeater mode, the **RM** icon appears.

CALLS ON ANALOG CHANNELS

Transmitting a Call on an Analog Channel

1. If not already, select the desired analog channel.
2. Listen for a clear channel. In other words, if another person is using the channel, wait for them to finish transmitting/speaking. If programmed, a monitor or squelch off shortcut key should be used to verify the channel is clear; see the following sections for additional information on these functions.
3. Hold down the microphone's **PTT** key to and speak into the microphone at a normal voice level.
4. Release the **PTT** key to stop transmitting, and listen for a reply.

Receiving a Call on an Analog Channel

1. If not already, select the desired analog channel. Do **not** press the **PTT** key.
2. When an incoming call is received on the channel, rotate the **On/Off Volume Control** knob as necessary to adjust the volume.

   If programmed, a monitor or squelch off shortcut key can be used to verify there is no signal on the channel. Also, the Squelch Off shortcut key can be used in weak signal conditions.

Monitor

Monitor is a function for analog channels that allows any programmed receiver decoding to be disabled so calls (or other activity) on the selected channel without the correct code can be monitored.

This does not disable receiver squelch. When the Monitor function is enabled, the icon appears in the top of the display, and any calls on the channel will be heard in the radio's speaker.

To enable and disable the Monitor function, press the programmed **Monitor** shortcut key, or the **Monitor Momentary** shortcut key. The **Monitor** shortcut key provides a toggle on/off type function, whereas the **Monitor Momentary** shortcut key temporarily enables the function only when the shortcut key is depressed.

If the Off Hook Monitor feature is programmed on, the Monitor function will automatically turn on when the radio's microphone is off hook.

Squelch Off

Squelch Off is an analog channel function that, when enabled, keeps the receiver unsquelched (i.e., not muted) even when there is no signal on the selected channel. When enabled, the icon appears in the top of the display and call audio on the channel (or receiver noise) is routed to the radio's speaker.

To toggle squelch between enabled and disabled, simply press the pre-configured **Squelch Off** shortcut key.

To momentarily turn squelch off, depress the pre-configured **Squelch Off Momentary** key. When this key is released, squelch turns back on.

Telephone Interconnect Calls

If an analog channel's repeater site equipment is connected to a Public Switched Telephone Network (PSTN) gateway system, the radio can make a phone call through this channel and phone system.

Transmitting a Phone Call (Requires Optional Keypad Microphone)

1. Select an analog channel that has a PSTN connection. Consult with your radio dealer as necessary.
2. Access the phone system using either a Live Dial method or Buffer Dial method as follows:
   - Live Dial — Hold down the mic's **PTT** key, then enter the access code via the mic's keypad and release the **PTT** key. The radio beeps and displays the dialing information. When the phone system is accessed successfully, the radio automatically goes to the DTMF keypad mode.

- Buffer Dial — Access the phone system as follows:

  A. Enter the DTMF keypad mode using one of the following methods:

     - From the home screen, press the **Menu** key then select Phone > Manual Dial to enter the DTMF keypad mode.
     - Press the programmed **DTMF Keypad** shortcut key.
     - From the home screen, press the **Menu** key then select Phone > DTMF Keypad > Enable.

  B. Enter the phone system's access code via the microphone's keypad and then press the mic's **PTT** key. The radio beeps and displays the dialing information. When the phone system is accessed successfully, the radio goes to the DTMF keypad mode again.

3. Dial the desired phone number using one of the following methods:
   - Live Dial — Hold down the mic's **PTT** key and enter the phone number via the mic's keypad. Release the **PTT** key after the complete phone number has been entered.
   - Buffer Dial — Enter the phone number via the mic's keypad and then hold down the mic's PTT key.
   - Select the **Back** and then the **Menu** keys, and then select Phone > Phone List to select a desired contact. Next, press the **PTT** key.
4. After the call is established, hold down the **PTT** key to talk, and release it to listen. To end the call, send the de-access code to exit the phone system; the input method is the same as that for the access code.

If the phone is hung up, the call will be ended and the phone system will be exited too.

Receiving a Phone Call

When the radio receives a phone call, the icon or the icon displays. To respond to the call, hold down the microphone's **PTT** key within the preset time period, and speak into the microphone at a normal voice level.

If you do not respond, the radio will provide appropriate indications. If you do not respond to a received phone call, the missed call icon appears at the top of the display. In addition, if the radio is programmed with Display Missed Call enabled, the large icon also displays.

SCANNING CHANNELS

GENERAL INFORMATION

The radio's scan feature allows scanning of radio channels programmed into the radio for call activity. Scan lists can be programmed for each channel and then edited as desired. Each scan list may contain thirty-two (32) digital or analog channels. When the radio is scanning channels:

- The icon appears in the top of the display.
- The LED indicator in the radio's Volume Control/Channel Selector knob flashes orange slowly.
- The radio scans the channels currently on the scan list for calls (or other activity).
- When a call (or other activity) is received/detected on a channel in the scan list:
  - The call's audio is routed to the radio's speaker.
  - The radio remains on the channel (i.e., scan operation automatically pauses) until the call (or other activity) ends.
  - The icon displays while the radio is paused on a non-priority scan channel.
  - The P_2 icon displays when the radio is paused on the priority 2 scan channel. During this time, scanning pauses until the call ends.
  - The P_1 icon displays when the radio is paused on the priority 1 scan channel. During this time, scanning pauses until the call on the priority 1 scan channel ends.

OPERATION

Turning Scan On and Off

Scan can be turned on and off via the Scan menu or, if programmed, by pressing the **Scan** shortcut key. Both are toggle-type functions. For details on using the Scan menu, refer to the *Operator's Manual*.

The radio can be programmed with the Auto Scan feature on a per-channel basis. If so, the radio will automatically begin scanning the channel's scan list when the channel is selected. In this case, turn to scan off, simply use the Scan menu or, if programmed, press the **Scan** shortcut key once.

Pausing Scan

If a call is received on an analog channel and staying on the channel (i.e., pausing scan) is desired so additional transmissions can be heard on it, simply press the programmed **Monitor** or **Squelch Off** shortcut key when a call is on the channel. When the Monitor function is on, the icon appears in the top of the display and if present, call audio on the channel is heard in the radio's speaker. When the Squelch Off function is on or when a call is on the channel, the icon appears in the top of the display and call audio on the channel (or receiver noise) is heard in the radio's speaker. Press the shortcut key again or the **Scan** shortcut key to unpause scan.

Nuisance Temporary Delete

To temporarily remove a channel from a channel's scan list so calls on it will not pause scanning, press the programmed **Nuisance Temporary Delete** shortcut key when a call is on the channel. In this case, the channel will not be scanned again until after a menu action is completed, or the channel or zone is changed, or the radio is power the radio is power-cycled, or scan is turned off and back on. Refer to the *Operator's Manual* for details on editing a scan list.

EMERGENCY COMMUNICATIONS

The radio's emergency feature can be used to summon help from another radio operator(s) and/or via a radio dispatch/control center. The emergency process has the highest call priority throughout the radio communications system. Emergency operations can be performed when the radio is transmitting or receiving. The radio can be programmed with different emergency modes, emergency types, and emergency ID types. Each channel can be programmed with different emergency system operation. Refer to the *Operator's Manual* for detailed information. Also consult your radio dealer for specific information on how your radio is programmed.

SECURE COMMUNICATIONS

GENERAL INFORMATION

The radio's Scrambler feature for analog channels can be used to reduce the likelihood of someone "eavesdropping" via analog radio channels. This feature employs analog voice inversion technology. This feature can be enabled and disabled on a per-channel basis.

The radio's Encrypt feature for digital channels can be used to prevent "eavesdropping" via the digital radio channel. This feature employs 256-bit digital AES encryption technology. This feature ensures the best guarantee of communication privacy. This feature can be enabled and disabled on a per-channel basis.

OPERATION

The Scrambler/Encrypt feature may be programmed to automatically enable when a channel is selected, or it may be manually enabled. When this feature is enabled/active, the icon appears in the display.

Manually Enabling and Disabling Scrambler/Encrypt

There are two (2) possible ways to enable and disable the Scrambler/Encryption feature:

- Scrambler: With an analog channel selected: Menu > Settings > Radio Set > Scrambler > Enable or Disable.
  Encrypt: With a digital channel selected: Menu > Settings > Radio Set > Encrypt > Enable or Disable.
- If the **Scrambler** or **Encrypt** shortcut key is programmed to a key, press this key to enable or disable the feature. A high-pitched tone sounds to indicate the feature is enabled. A low-pitched tone sounds to indicate the feature is disabled.